

## **RESOURCE ALLOCATION CATEGORY (SUBPROGRAM) DESCRIPTION**

### **Allocation Code and Title:**

125, Highway Bridge Replacement and Rehabilitation

### **Process Owner:**

Bridge Group, Assistant State Bridge Engineer - Design

### **Program Purpose:**

Preservation of the existing highway bridges is a primary component of the ADOT mission. Bridges are a high cost system asset, and the asset condition directly affects customer satisfaction. In addition to routine inspection and repair, major replacement is required to replace a structurally deficient or functionally obsolete highway bridge on any public road with a new facility constructed in the same general traffic corridor, major rehabilitation is required to restore the structural integrity of a bridge on any public road as well as the rehabilitation work necessary to correct major safety (functional) defects, and bridge painting, seismic retrofitting, or installing scour countermeasures. The Bridge Replacement and Rehabilitation Program is administered through the Five Year Transportation Facilities Construction Program due to both the magnitude of projects and the need for a centrally coordinated management system approach.

The 125 Highway Bridge Replacement and Rehabilitation resource allocation category is the major component of the overall Bridge Preservation Program. The bridge replacement and rehabilitation bridge candidates are generated from FHWA Annual Selection List which are prioritized based on the Sufficiency Rating obtained from field inspection in conjunction with District input. The Bridge Group Program Committee (consists of State Bridge Engineer, Assistant State Bridge Engineers, and Section Leaders) will review these candidates with the final approval of State Bridge Engineer to forecast funding requirements and identify projects required to achieve system objectives. The allocation covers only the construction cost of the bridgework under the federal fund. All development costs are funded through either the administrative budget or other subprograms (216, Construction Preparation: Bridge Group).

The objective of the Bridge Replacement and Rehabilitation Program is to restore the structural integrity of a bridge as well as work necessary to correct major safety defects as cost effectively as possible. Measurable objectives include:

Bridge replacement or rehabilitation project completed on time within budget.

Maintain an average cost for a new bridge per square foot of \$60.00 or less.

**Rationale for Desirable Allocation Level:**

The Highway Bridge Replacement and Rehabilitation Program is a federally funded program under the Transportation Equity Act for 21<sup>st</sup> Century (TEA-21) with a matching ratio of 80% federal to 20% state or local government funds. The funds are split between local governments and ADOT at a rate of 35% to local and 65% to the State. The Federal Highway Administration (FHWA) requires that a minimum of 15% and a Maximum of 35% be spent on the off system. ADOT receives approximately \$10 million annually for the State portion of the HBRRP program.

The text contained in this document is based on ADOT's current practice in implementing the HBRRP Program. In addition, the Code of Federal Regulations, Title 23: Highways, April 1, 1998 revision, provided for the legal background throughout the discussion.

216, Bridge Design Construction Preparation funds scoping, prepare PS&E package, project management and post design services through on-call consultants.

**Expected Program Duration:**

This is an ongoing annual program require to preserve the integrity of bridges in Arizona Highway System and is also mandated by FHWA under the Transportation Equity Act for the 21<sup>st</sup> Century. Discontinuation will result in a gradual deterioration of the structural integrity of bridges and lead to eventual need for the total replacement of numerous bridges at higher cost and unsafe bridges for traveling public.

**Program Management Process:****Budget Management**

The Assistant State Bridge Engineer - Design is responsible for recommending program allocations and line items. Allocated budget is distributed to line item projects in the first three program years. Due to inability to accurately forecast specific projects beyond three to four years, the last two program years are shown as a single lump sum amount in each year. A tentative project list is provided for the forth program year lump sum. During each new program development cycle, the prior program tentative project list is modified and finalized as the new year-three projects, and a new tentative project list is prepared for year-four of the new program.

## **Authority and Process for Lump Sum Expenditures**

The Assistant State Bridge Engineer - Design has authority to allocate the lump sum budgets for the program years. Request for supplemental funding typically comes from Project Managers of line item HBRRP projects. All allocations are subject to approval by PRB. New project recommendations require approval of PRB, PPAC and the Transportation Board. Contingency funds may be needed to increase funding for line item projects due to inadequate estimates or scope revision and must be approved by PRB, PPAC and the Transportation Board. Contingency funds are obligated at bid advertisement with the projects they are associated with.

## **Project Recommendation Process**

A bridge replacement project is eligible for HBRRP funds if it replaces a structurally deficient or functionally obsolete bridge with a new facility constructed in the same general traffic corridor. The replacement structure must meet the current geometric, construction and structural standards required for the types and volume of projected traffic on the facility over its design life. The costs of long approach fills, causeway, connecting roadways, interchanges, ramps, and other extensive earth structures, when constructed beyond the attainable touchdown point, are not eligible for HBRRP funding.

A Bridge rehabilitation project is eligible for HBRRP funds if it restores the structural integrity of a bridge as well as corrects major safety defects.

Eligible bridges for this program must be either structurally deficient or functionally obsolete and must have sufficiency rating of less than 80. Deficient bridges with sufficiency ratings of over 50 and less than 80 are eligible for rehabilitation only, but can be replaced if economically justifiable. Deficient bridges with sufficiency rating less than 50 are eligible for either rehabilitation or replacement.

Based on annual bridge inspections, Bridge Group will receive the eligible bridge candidate list issued by FHWA. Selections are based on sufficiency rating, structural deficiencies, functional obsolescence, planned corridor improvement, and input from Districts regarding maintenance and safety. The staff works closely with Transportation Planning Group to identify and prioritize project recommendations. The year-four tentative projects are scope either by Roadway Predesign Section or by on-call consultants funded through the Bridge Group Construction Preparation item within the Design Support subprogram. During each program cycle, the Assistant State Bridge Engineer - Design recommends

line item projects for the new year-three, and a new tentative project list for the new year-four, based on the current allocation levels to Bridge Group Program Committee with final approval of the State Bridge Engineer.

### **Project Design Process**

Line item projects are either designed by in-house staff or by on-call consultants funded out of the Bridge Group Construction Preparation item. All other development costs are funded from Right-of way support, Environmental Support, and Utility Support subprograms as appropriate. Project design follows the ADOT Development Process Guidelines.